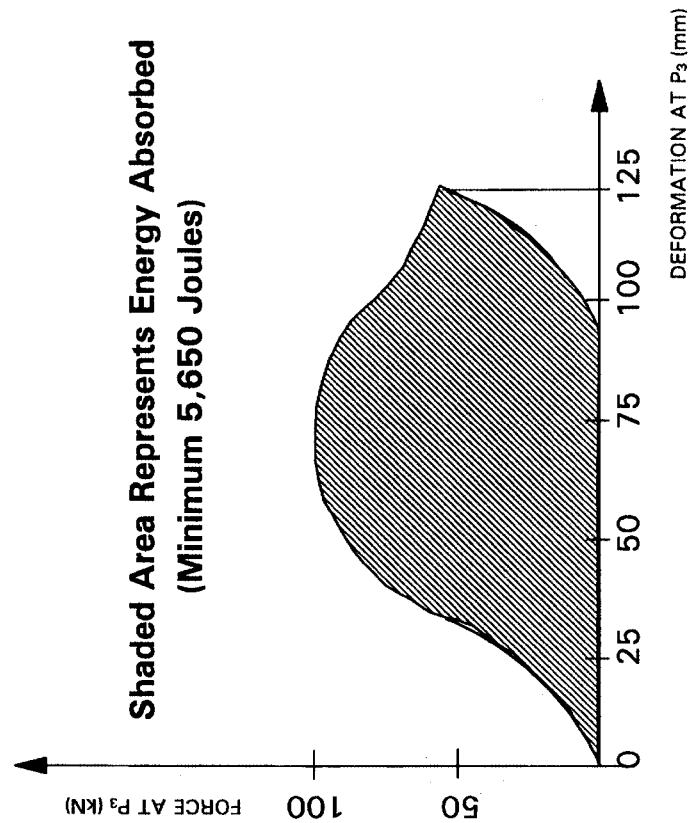


**FIGURE 2. GUARD ENERGY ABSORPTION  
(TYPICAL FORCE-DEFLECTION CURVE AT P<sub>3</sub>)**



[61 FR 2030, Jan. 24, 1996, as amended at 63 FR 3662, Jan. 26, 1998]

**§ 571.224 Standard No. 224; Rear impact protection.**

**S1. Scope.** This standard establishes requirements for the installation of rear impact guards on trailers and semitrailers with a gross vehicle weight rating (GVWR) of 4,536 kg or more.

**S2. Purpose.** The purpose of this standard is to reduce the number of deaths and serious injuries occurring when light duty vehicles impact the rear of trailers and semitrailers with a GVWR of 4,536 kg or more.

**S3. Application.** This standard applies to trailers and semitrailers with a GVWR of 4,536 kg or more. The standard does not apply to pole trailers, pulpwood trailers, special purpose vehi-

cles, wheels back vehicles, or temporary living quarters as defined in 49 CFR 529.2. If a cargo tank motor vehicle, as defined in 49 CFR 171.8, is certified to carry hazardous materials and has a rear bumper or rear end protection device conforming with 49 CFR part 178 located in the area of the horizontal member of the rear underride guard required by this standard, the guard need not comply with the energy absorption requirement (S5.2.2) of 49 CFR 571.223.

**S4. Definitions.**

**Chassis** means the load supporting frame structure of a motor vehicle.

**Horizontal member** means the structural member of the guard that meets the configuration requirements of S5.1 of this section when the guard is installed on the vehicle according to the

installation instructions or procedures required by S5.5 of §571.223, Rear Impact Guards.

*Low chassis vehicle* means a trailer or semitrailer having a chassis that extends behind the rearmost point of the rearmost tires and a lower rear surface that meets the configuration requirements of S5.1.1 through 5.1.3 of this section.

*Outer or Outboard* means away from the trailer centerline and toward the side extremities of the trailer.

*Pulpwood trailer* means a trailer that is designed exclusively for harvesting logs or pulpwood and constructed with a skeletal frame with no means for attachment of a solid bed, body, or container.

*Rear extremity* means the rearmost point on a vehicle that is above a horizontal plane located 560 mm above the ground and below a horizontal plane located 1,900 mm above the ground when the vehicle is configured as specified in S5.1 of this section and when the vehicle's cargo doors, tailgate, or other permanent structures are positioned as they normally are when the vehicle is in motion. Nonstructural protrusions such as taillights, rubber bumpers, hinges and latches are excluded from the determination of the rearmost point.

*Rounded corner* means a guard's outermost end that curves upward or forward toward the front of the vehicle, or both.

*Side extremity* means the outermost point on a vehicle's side that is located above a horizontal plane 560 mm above the ground, below a horizontal plane located 190 cm above the ground, and between a transverse vertical plane tangent to the rear extremity of the vehicle and a transverse vertical plane located 305 mm forward of that plane when the vehicle is configured as specified in S5.1 of this section. Nonstructural protrusions such as taillights, hinges, rubber bumpers, and latches are excluded from the determination of the outermost point.

*Special purpose vehicle* means a trailer or semitrailer having work-performing equipment that, while the vehicle is in transit, resides in or moves through the area that could be occupied by the horizontal member of the rear

underride guard, as defined by S5.1.1 through S5.1.3.

*Wheels back vehicle* means a trailer or semitrailer whose rearmost axle is permanently fixed and is located such that the rearmost surface of tires of the size recommended by the vehicle manufacturer for the vehicle on that axle is not more than 305 mm forward of the transverse vertical plane tangent to the rear extremity of the vehicle.

#### S5. Requirements.

##### S5.1 Installation; vehicle configuration.

Each vehicle shall be equipped with a rear impact guard certified as meeting Federal Motor Vehicle Safety Standard No. 223, *Rear Impact Guards* (§571.223). When the vehicle to which the guard is attached is resting on level ground, unloaded, with its full capacity of fuel, and with its tires inflated and air suspension, if so equipped, pressurized in accordance with the manufacturer's recommendations, the guard shall comply with the requirements of S5.1.1 through S5.1.3 of this section. See Figure 1 of this section.

**S5.1.1 Guard width.** The outermost surfaces of the horizontal member of the guard shall extend outboard to within 100 mm of the longitudinal vertical planes that are tangent to the side extremities of the vehicle, but shall not extend outboard of those planes. See Figure 1 of this section.

**S5.1.2 Guard height.** The vertical distance between the bottom edge of the horizontal member of the guard and the ground shall not exceed 560 mm at any point across the full width of the member. Notwithstanding this requirement, guards with rounded corners may curve upward within 255 mm of the longitudinal vertical planes that are tangent to the side extremities of the vehicle. See Figure 1 of this section.

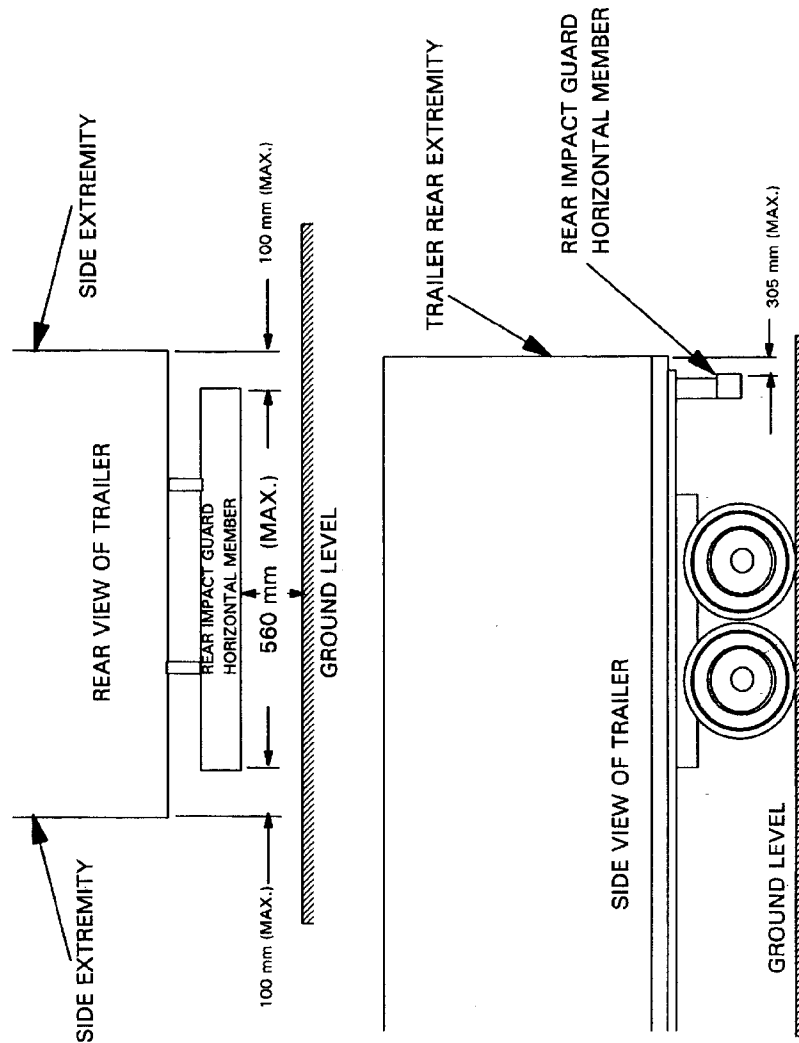
**S5.1.3 Guard rear surface.** At any height 560 mm or more above the ground, the rearmost surface of the horizontal member of the guard shall be located as close as practical to a transverse vertical plane tangent to the rear extremity of the vehicle, but no more than 305 mm forward of that plane. Notwithstanding this requirement, the horizontal member may extend rearward of the plane, and guards

with rounded corners may curve forward within 255 mm of the longitudinal vertical planes that are tangent to the side extremities of the vehicle.

**S5.2 Installation Requirements.** Guards shall be attached to the vehicle's chassis by the vehicle manufacturer in ac-

cordance with the installation instructions or procedures provided pursuant to S5.5 of Standard No. 223, *Rear Impact Guards* (§571.223). The vehicle must be of a type identified in the installation instructions as appropriate for the guard.

**FIGURE 1. CONFIGURATION REQUIREMENTS**



[61 FR 2035, Jan. 24, 1996, as amended at 63 FR 3662, Jan. 26, 1998]

**§571.225 Standard No. 225; Child restraint anchorage systems.**

**S1. Purpose and scope.** This standard establishes requirements for child restraint anchorage systems to ensure their proper location and strength for the effective securing of child restraints, to reduce the likelihood of the anchorage systems' failure, and to increase the likelihood that child restraints are properly secured and thus more fully achieve their potential effectiveness in motor vehicles.

**S2. Application.** This standard applies to passenger cars; to trucks and multi-purpose passenger vehicles with a gross vehicle weight rating (GVWR) of 3,855 kilograms (8,500 pounds) or less; and to buses (including school buses) with a GVWR of 4,536 kg (10,000 lb) or less. This standard does not apply to walk-in van-type vehicles, vehicles manufactured to be sold exclusively to the U.S. Postal Service, shuttle buses, and funeral coaches.

**S3. Definitions.**

*Child restraint anchorage* means any vehicle component, other than Type I or Type II seat belts, that is involved in transferring loads generated by a child restraint system to the vehicle structure.

*Child restraint anchorage system* means a vehicle system that is designed for attaching a child restraint system to a vehicle at a particular designated seating position, consisting of:

- (a) Two lower anchorages meeting the requirements of S9; and
- (b) A tether anchorage meeting the requirements of S6.

*Child restraint fixture (CRF)* means the fixture depicted in Figures 1 and 2 of this standard that simulates the dimensions of a child restraint system, and that is used to determine the space required by the child restraint system and the location and accessibility of the lower anchorages.

*Funeral coach* means a vehicle that contains only a front row of occupant seats, is designed exclusively for transporting a body and casket and that is equipped with features to secure a casket in place during operation of the vehicle.

*Rear designated seating position* means any designated seating position (as that term is defined at §571.3) that is rearward of the front seats(s).

*Seat bight* means the area close to and including the intersection of the surfaces of the vehicle seat cushion and the seat back.

*SFAD 1* means Static Force Application Device 1 shown in Figures 12 to 16 of this standard.

*SFAD 2* means Static Force Application Device 2 shown in Figures 17 and 18 of this standard.

*Shuttle bus* means a bus with only one row of forward-facing seating positions rearward of the driver's seat.

*Tether anchorage* means a user-ready, permanently installed vehicle system that transfers loads from a tether strap through the tether hook to the vehicle structure and that accepts a tether hook.

*Tether strap* means a strap that is secured to the rigid structure of the seat back of a child restraint system, and is connected to a tether hook that transfers the load from that system to the tether anchorage.

*Tether hook* means a device, illustrated in Figure 11 of Standard No. 213 (§571.213), used to attach a tether strap to a tether anchorage.

**S4. General vehicle requirements.**

**S4.1** Each tether anchorage and each child restraint anchorage system installed, either voluntarily or pursuant to this standard, in any new vehicle manufactured on or after September 1, 1999, shall comply with the configuration, location, marking and strength requirements of this standard. The vehicle shall be delivered with written information, in English, on how to appropriately use those anchorages and systems.

**S4.2** For passenger cars manufactured on or after September 1, 1999 and before September 1, 2000, not less than 80 percent of the manufacturer's average annual production of vehicles (not including convertibles), as set forth in S13, shall be equipped with a tether anchorage as specified in paragraphs (a), (b) and (c) of S4.2, except as provided in S5.

- (a) Each vehicle with three or more forward-facing rear designated seating